TEST PLAN:

The I-40 TTIS (Traveler and Tourist Information System) Tourist Intercept Survey

May 18, 1998

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U.S. Department of Transportation
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16. Abstract

The I-40 Traveler and Tourist Information System (TTIS) in northern Arizona is a Field Operational Test (FOT) of Traveler Information Services in Tourism Areas funded through the National Advanced Rural Transportation Systems Program. The main objective of the I-40 TTIS is to have corridor visitors become better informed, resulting in a safer, enhanced visitor experience while traveling along the corridor.

The evaluation of the I-40 TTIS is being conducted by Battelle under the ITS Program Assessment Support contract with the Department of Transportation's ITS Joint Program Office. The evaluation will address technical challenges in developing Advanced Traveler Information Systems (ATIS) applications in rural environments, institutional benefits and issues, usefulness of the information to the traveling public, effectiveness of various media to disseminate information to the public, and the overall impact of the information on traveler behavior. The evaluation strategy combines primary and secondary data collection and analyses for evaluating benefits and outcomes. Tourist intercept surveys, focus groups, personal interviews, and special traffic studies are the primary data collection methods that will be used.

This Test Plan describes the methods and procedures that will be used to carry out the tourist intercept survey. The survey will provide valuable information on ATIS awareness, use, and resulting behavior in rural environments. It will also provide information on the tourists' travel experiences, satisfaction with various aspects of the transportation system, travel characteristics, and general demographic information.

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PREFACE

This document is part of a series of planning documents for the evaluation of Field Operational Tests of Traveler Information Services in Rural Tourism Areas (Branson TRIP and I-40 TTIS) prepared by Battelle, along with subcontractors BRW Incorporated and CJI Research, for the U.S. Department of Transportation's ITS Joint Program Office (DOT/JPO). Electronic versions of these documents are available through the ITS Electronic Document Library (EDL):

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1.0 INTRODUCTION

The Branson Travel and Recreational Information Program (TRIP) in Branson, Missouri, and the I-40 Traveler and Tourist Information System (TTIS) in the I-40 corridor of northern Arizona are two Field Operational Tests (FOTs) of Traveler Information Services in Tourism Areas funded through the National Advanced Rural Transportation Systems Program. The evaluation of Branson TRIP and the I-40 TTIS is being conducted by Battelle under the Intelligent Transportation Systems (ITS) Program Assessment Support contract with the Department of Transportation's ITS Joint Program Office.

As part of the overall evaluation, several tests have been planned. This document serves as a detailed test plan for one such test: tourist surveys. Section 2.0 presents an overview of the approach, and the remaining sections present specific details for implementing the approach.

The rural ITS test site programs (I-40 TTIS and Branson TRIP) have five central objectives: to improve mobility, increase awareness, reduce congestion, stimulate economic development, and improve safety. To evaluate the extent to which the ITS deployment has fulfilled these objectives, information will be collected from tourists, the target population of the ITS deployments.

The intercept surveys are designed to obtain specific information on each of the five central evaluation objectives (mobility, access, congestion, economic impact, and safety). For example, the survey will obtain from tourists measures of the perceived ease of travel (mobility), trip times (mobility), awareness of travel options (access), the perceived number and duration of delays (congestion), intent to return (economic impact), and perceived improvements to safety (safety). The questionnaires that will be used to obtain this and additional information are presented in Appendix A.

2.0 APPROACH

Information will be collected from tourists using three different survey instruments: a screening instrument (screener questionnaire), a more extensive questionnaire (main questionnaire), and a qualitative supplement. The screening questionnaire will be short, interviewer administered, and completed by a large portion of the population. The main questionnaire will be self-administered, will collect more information, but will be given only to a subset of tourists (during the pilot test, all intercepted tourists will be given the main questionnaire). The qualitative supplement will be used to obtain in-depth information from a small number of tourists.

Tourists will be surveyed during two separate data collection periods. The first collection period (Phase I) will be conducted shortly after deployment of ITS (June) and will serve as a pilot study. The pilot phase will be used to refine the survey instruments, gather information that can be used to refine sample size estimation, assess the level of cooperation from tourists and local businesses, and provide a limited amount of information on awareness of ITS shortly after deployment. The main data collection period will be held in August.

In both data collection periods, information from tourists will be collected using an "intercept" approach. In this survey technique, information is collected by "intercepting" tourists as they enter or leave a pre-specified attraction or location. In particular, tourists will be intercepted as they arrive at a site, or arrive at their vehicles prior to leaving, during their stay at a local hotel, and at information centers. At each site, a systematic sampling scheme will be employed to identify tourists for participation. That is, every nth person will complete a screening questionnaire (only one person from each traveling party or vehicle will complete a screening questionnaire). Everyone who indicates that they are aware of a component of the ITS deployment will be asked to complete a main questionnaire. For each person who is aware of ITS, the next "unaware" person will also complete a main questionnaire.

In the pilot phase, tourists will be intercepted both at attractions and at hotels. Using hotels has the advantage that it will likely increase the willingness of tourists to participate in the study since they can provide information while in a comfortable environment. Intercepting tourists at attractions, using parking lot interceptions, allows information to be collected from the portion of the population not using hotels (i.e., day-trippers or campers). If the results of the pilot phase reveal that a large component of the tourist population is not using hotels, more emphasis will be placed on intercepting potential participants as they enter/leave attractions and less emphasis will be placed on hotel-based intercepts. Conversely, if the pilot phase demonstrates that a large proportion of the tourist population are overnight travelers, then more emphasis will be placed on hotel-based intercepts and less on attraction-based intercepts.

The collected questionnaires will be reviewed on-site and again prior to data entry for completeness, accuracy, and consistency. Following the review, information from the questionnaires will be entered and converted to a database suitable for analysis. The resulting data will be analyzed using Statistical Analysis Software (SAS) and SUrvey DAta ANalysis software (SUDAAN).

As with any field test, there are several underlying conditions that must be met before this test can be conducted. First and foremost, there must be a large enough population of aware and non-aware tourists to sample. Scheduling the main data collection activities for August assumes that the ITS deployment has been completed (or nearly completed) and that a significant number of people are aware of the components of the ITS system. An underlying condition that affects the generalization of the test results is that tourists during the data collection time frame are "typical" tourists to the FOTs (e.g., not all computer experts from Microsoft visiting the FOT *en masse*).

3.0 SCHEDULE

As discussed in the previous section, there will be two data collection phases in this test. The first phase of data collection will occur on June 19–20 and the second phase of data collection will occur on August 7–10, 1998. Table 1 presents the anticipated schedule for the completion of all activities related to this test.

Table 1. Anticipated Schedule for Test

Activity	1998									1999			
	A	M	J	J	A	S	O	N	D	J	F	M	A
Pre-Test Activities Design Training Equipment Facilities	X X X	X X X	June 18	X X X	August 6								
Test Activities Pilot Phase Main Phase			June 19–20		August 7–10								
Post-Test Activities				X		X	X						
Analysis and Reporting				X			X	X	X	X	X	X	X

4.0 PRE-TEST ACTIVITIES

Before collecting data from tourists, several pre-test activities will be conducted. In particular, the following activities will be conducted: development of the data collection design, training of local data collection staff, procurement and placement of equipment, and securement of additional resources and facilities.

4.1 Data Collection Design

In Section 2.0 we presented an overview of the data collection design. The remaining sections present additional details on activities related to collecting data from tourists. Highlights to the data collection are:

- Five teams of two interviewers each will be used to intercept tourists as they enter or leave an attraction or hotel.
- Each team will intercept tourists at one or more locations (different locations for each team).
- Tourists will be intercepted during a two-day period in June and a four-day period in August.
- Each team will intercept tourists for 6-8 hours each day, with the goal of obtaining 10 completed main questionnaires per hour.
- We anticipate collecting 600 screeners and 150 main questionnaires during the two-day collection period in June and 1200 screeners and 600 main questionnaires during the four-day data collection period in August. However, irrespective of the data collection efforts, the anticipated number of completions also depends on weather, tourist flow, and

cooperation rates. The combined effect of these factors may result in fewer completions than anticipated.

4.2 Training

All data collection team members will undergo a four-hour training session from 1:00-5:00 p.m. on the afternoon of June 18, and again on the afternoon of August 6. The Battelle project director for survey operations will conduct the training along with a study supervisor. The training program will be structured to ensure that each interviewer acquires adequate background knowledge of the study, fully comprehends all field procedures, and successfully develops the skilled interviewing techniques required for this project. All local staff will be tested toward the end of training, and those not meeting an acceptable level of performance will not be allowed to interview tourists. The agenda for each four-hour training session is presented in Table 2.

Table 2. Agenda for Training

Component	Estimated Completion Time
Introductions	10 minutes
Background and Purpose of the Study	20 minutes
Screening Activities	75 minutes
How to approach tourists	15 minutes
How to complete the screening form	10 minutes
Who qualifies to receive a questionnaire	10 minutes
Handling special situations	10 minutes
Paired role plays	30 minutes
BREAK	15 minutes
Questionnaire	45 minutes
How to administer	10 minutes
Understanding each item	25 minutes
Incentives	10 minutes
Editing of completed forms	15 minutes
Supervisor role play for validation	30 minutes
Administration	30 minutes
How to complete a time sheet	10 minutes
Assignments and distribution of supplies	20 minutes

During the sessions on screening activities and administering the questionnaire, each data collection team member will be instructed in specific interviewing rules that are critical in obtaining quality data:

- Ask questions exactly as printed.
- Ask questions in the order in which they appear in the questionnaire.
- Ask every question specified in the instructions and read the entire question.
- Read questions slowly in a normal, conversational tone.

- Repeat questions that are misunderstood.
- Avoid behavior that influences the person's response.
- Use neutral probes when needed to obtain more information or clarify a response.
- Record answers in pencil. Do not erase. Mark through errors and circle the correct response.

Even though the questionnaire is designed to be self-administered by the tourist, local data collectors will be given question-by-question instructions on the form so that they can give informed answers to questions the tourist may ask.

During paired role play, one trainee will take the role of a data collection team member while the other plays the tourist. Data collection supervisors will observe the pairs in order to answer questions and check progress. Trainees are encouraged to try to create a *true* situation. During the validation role plays, the supervisors will verify that every staff member is comfortable will all study materials, can easily approach tourists and elicit their cooperation in the study, and understands their responsibilities as a data collector.

Training is also expected to be ongoing during the data collection process. During data collection, data collection team members are required to conduct their activities in the manner prescribed at training. The data collection supervisors will monitor all data collection activities and the quality of the data produced. Supervisors will travel to all data collection points each day to observe a period of data collection. Data collection team members will be given feedback by the supervisory staff on any errors detected and how to correct them. They will also be kept up-to-date on possible changes that need to be made in the study procedures as the data collection progresses.

4.3 Procurement of Required Equipment

During the training sessions, the following equipment will be required:

- Name tags
- Training manuals with sample forms for each data collector
- Extra forms for role plays
- Pencils, paper, post-its
- Maps of data collection points
- Schedules with assigned data collection times and places
- Snacks for break time.

The following equipment will be obtained for use during each data collection phase:

- **Clipboards.** Four clipboards for each data collection team, 20 in all. The clipboards will be given to the interviewers immediately before initiating data collection.

- **T-shirts and Nametags.** Each data collection team member will be required to wear a T-shirt that clearly identifies them as study personnel. Fifteen T-shirts are needed for each data collection phase. The T-shirts will be given to the data collection team members following the completion of the training session. The data collection team members will also wear nametags.

- **Writing Utensils.** Each data collection team will be supplied with a box of #2 lead pencils and a sharpener each morning before data collection. In addition, each data collection team will receive several green pencils to be used to edit the questionnaires.

- **Survey Forms.** Following the training session, each night, and periodically throughout the day, the data collection supervisor will distribute pre-printed copies of the screener and main questionnaires to each data collection team.

- **Tote Bags.** Each data collection team will receive a tote bag for storing supplies and completed questionnaires.

4.4 Additional Resources and Facilities

Prior to the data collection portion of the test, an attempt will be made to obtain donated incentives from local FOT partners, local restaurants, hotels, etc. If incentives are not donated, then coupons at local restaurants or gift certificates at local stores will be purchased and utilized as incentives. For example, a possible incentive that may be used at the Grand Canyon National Park is a discount coupon for a show at the Grand Canyon IMAX Theatre.

An additional activity will be to investigate the appropriateness of each sampling location and to identify the specific sites within each location where tourists should be intercepted. Also, letters of authorization and other required documents (e.g., parking pass, gate tickets, etc.) will be obtained from the appropriate authorities for each location. The authorization letters and any other required documents will be given to the data collection team the day before sampling is to occur at the location.

5.0 TEST ACTIVITIES

This chapter provides details on the logistical aspects of the field test. As discussed in Chapter 2.0, the field test will be conducted in two phases. The pilot phase will be conducted on Friday, June 19, 1998, and Saturday, June 20, 1998. The main data collection phase will be conducted on August 7–10, 1998. The sections in this chapter present details outlining "where" (Section 5.1) and "how" (Section 5.2) tourists will be sampled.

5.1 Sampling Locations and Schedule

This section provides details on the specific sampling locations and schedule for the data collection activities that will be conducted. Section 5.1.1 presents the sampling locations and schedule for the pilot data collection phase. Section 5.1.2 presents the associated information for the main data collection phase.

5.1.1 Sample Locations and Schedule for the Pilot Data Collection Phase

One objective of the pilot phase is to obtain the maximum amount of information on unknown issues surrounding sampling tourists at locations along the I-40 corridor. As such, it is desirable to maximize the learning experience by conducting intercept sampling under a variety of conditions and at several locations. These experiences will then be used to ensure that the main phase of data collection collects the correct information from appropriate locations. However, it should be noted that locations for sampling in the pilot phase are not as geographically diverse as are the locations for the main phase of data collection due to concerns over logistical issues.

In both the main and the pilot phases of data collection, five teams of two interviewers each will be used to obtain information from tourists. However, rather than having each data collection team interview tourists at a separate location, an emphasis will be placed on sampling tourists at the Grand Canyon National Park (GCNP), which is by far the largest tourist attraction along the I-40 corridor. In particular,

during the pilot phase, three teams of interviewers will collect information from tourists at three separate sites in and immediately around the GCNP.

The first column in Table 3 presents the locations where tourists will be intercepted during the pilot phase. The second column presents the specific times at each location that the interviewer teams will attempt to intercept tourists. The last two columns of Table 3 present the number of interviewer teams for each day of data collection.

The GCNP was selected because it is the largest tourist attraction along the I-40 corridor. Sites within the GCNP were selected based upon conversations with the GCNP Transportation Director, Jim Tuck, regarding the sites that would be representative of tourists visiting the GCNP. Within the GCNP, tourists will be intercepted at several sites: the Mather Point parking lot, Mather Center, GCNP Tourist Information Center, the GCNP IMAX Theater parking lot located at the South Rim Entrance in Tusayan, and hotels at the South Rim Entrance (Best Western Grand Canyon Squire Inn, Grand Canyon Quality Inn, and Grand Canyon Suites). One data collection team will be stationed at the Mather Point parking lot, another team will cover the Mather Center and the GCNP Tourist Information Center, and the remaining team will cover the GCNP IMAX Theater parking lot and as many hotels as possible. For the safety of the data collection team, a table will be set up at a focal location at the end of the Mather Point parking lot closest to the observation deck, and tourists will be intercepted as they enter or leave the parking lot rather than at their cars. A similar setup will be employed at the Mather Center parking lot and the parking lot at the IMAX Theater in Tusayan (interviewers will be located at the focal point of the parking lot that is nearest the attraction). At the GCNP Tourist Information Center, a table will be set up immediately inside or outside of the center, and tourists will be intercepted as they enter or leave the center (not in the parking lot).

Table 3. Sampling Locations and Schedule for the Pilot Phase of Data Collection

Location	Times	Interviewer Teams	
		June 19, 1998	**June 20, 1998**
South Rim, Grand Canyon National Park			
Mather Point Parking Lot	9:00-4:00	Team 1	Team 1
Mather Center	9:00-12:30	Team 2	Team 2
GCNP Tourist Information Center	12:30-4:00	Team 2	Team 2
IMAX Parking Lot-South Rim Entrance	12:30-4:00	Team 3	Team 3
Hotels at South Rim Entrance[1]	9:00-12:30	Team 3	Team 3
Tourist Information Center: Williams	8:30-4:30	Team 4	
Best Western Inn of Williams	8:30-12:30	Team 5	
Ramada Inn “Canyon Gateway,” Williams	12:30-4:30		
Little America Hotel, Flagstaff	8:30-12:30		Team 4
Days Inn Route 66, Flagstaff	12:30-4:30		
Sunset Crater	9:00-12:30		Team 5
Wupatki National Monument	12:30-4:00		

[1] Best Western Grand Canyon Squire Inn, Grand Canyon Quality Inn, and Grand Canyon Suites

The Tourist Information Center in Williams, AZ, was selected for sampling in the pilot phase because it is one of four information centers along the I-40 corridor that will receive an interactive kiosk and because it is likely to be used by tourists. The other information centers receiving kiosks are located near Bullhead City, Flagstaff, and Lupton. Due to time and budgetary constraints, it is not feasible to sample tourists at the Bullhead City and the Lupton Tourist Information Centers during the pilot phase. The Information Center at Flagstaff is located at the Little America Truck Stop and, based upon initial conversations with the local FOT partner and the results of a recent survey conducted by the Arizona Hospitality Research and Resource Center of Northern Arizona University, the extent to which this center is used by tourists rather than commercial vehicle operators (CVOs) is unclear. Of the 169 tourists surveyed, only 4 percent obtained information from the Flagstaff Visitor Center. Using the results for the kiosk information obtained as part of the pilot phase, a determination will be made whether to include the Little America Truck Stop as a sampling location in the main data collection phase. Tourists will be intercepted as they enter or exit the Williams information center. The data collection team members will be located immediately inside (or outside) of the main entrance to the information center.

Hotels in Williams and Flagstaff were not selected randomly for the pilot phase. The hotels were selected because management of these hotels had expressed previous willingness to participate in studies of this nature. This was done because intercepting tourists at hotels is attractive in theory, but the actual feasibility of this approach is unknown. Conducting the pilot phase sampling at hotels that have previously expressed a willingness to participate conserves recruitment resources until the real-world feasibility of this approach has been tested. These two cities were selected because they are both on I-40, in close proximity to the GCNP and other major tourist attractions, and in the vicinity of several components of the ITS deployment. At each hotel, a table will be set up in the hotel lobby (within sight of the door and the registration area), and tourists will be intercepted as they enter or leave the hotel. Further, twice a day, additional areas such as a pool or an entertainment room will be checked for eligible participants.

Sunset Crater and Wupatki National Monument (WNM) are located northeast of Flagstaff and are accessed via FS 545, a 35-mile loop road that starts on Hwy 89 and travels through both parks. These locations were selected for sampling in the pilot phase because it is anticipated that tourists will also be intercepted at this attraction during the main phase of data collection. Even though it is likely that a sample of tourists will be obtained at the Petrified Forest National Park (PFNP) in the main phase, intercept surveys will not be conducted at the PFNP during the pilot phase due to its geographic location relative to the other pilot phase sampling locations. At both Sunset Crater and WNM, tourists will be intercepted as they leave or enter the visitor centers. The Visitor Center at Sunset Crater National Monument is located two miles from the south entrance of the loop road off Hwy 89. The Visitor Center for Wupatki National Monument is located 18 miles north of Sunset Crater and 14 miles from Hwy 89 north entrance. At each visitor center, the data collection team members will be located immediately inside or outside of the main entrance to the visitor center.

At the end of the training session, the data collection team members will be assigned specific locations where they will be intercepting tourists the following day. Also, the equipment described in Section 4.3 will be distributed. At the end of each day of data collection, the data collection team members will be required to report to a central location. At the evening meeting, the completed questionnaires will be collected from the data collection team members and the data collection team members will complete and sign time sheets. Also, any problems or questions that were not resolved during the day will be resolved at this time.

5.1.2 Sample Locations and Schedule for the Main Data Collection Phase

The main data collection phase will be conducted over four consecutive days in August (Friday–Monday, August 7–10). As in the pilot phase, five data collection teams of two interviewers each will collect information from tourists.

The exact sampling locations and the number of data collection teams at each location for the main data collection phase will depend, in part, upon the results of the pilot phase. For example, if the pilot phase results reveal that sampling tourists at hotels is infeasible due to logistical issues, then data collection in the main phase will be shifted to place more emphasis on intercepting tourists at attractions or at tourist information centers. Therefore, the actual locations for data collection activities and the number of data collection teams at each location in the main phase will be established following the pilot study. However, it is anticipated that intercept surveys will be conducted at the GCNP and three other attractions, several hotels, and at least one tourist information center.

Table 4 presents the attractions along the I-40 corridor and the approximate number of visitors to each attraction in 1996. With the exception of the GCNP, only attractions in the immediate vicinity of I-40 were considered as potential sampling locations. The last column in Table 4 indicates the attractions that have tentatively been selected as data collection locations in the main phase. These attractions were selected at random with probability proportional to the approximate number of 1996 visitors. Again, this assumes that sampling will occur at the GCNP and three other attractions.

Table 4. Preliminary Attractions Selected for Sampling in the Main Phase of Data Collection

Attraction	Approximate Number of 1996 Visitors	Selected for Sampling?
Grand Canyon National Park	4,537,703	Yes – Selected With Certainty
Petrified Forest National Park	829,495	Yes
Sunset Crater/ Wupatki National Monument	437,238	Yes
Meteor Crater	300,000	No
Hubbell Trading Post National Historic Site	253,123	No
Walnut Canyon National Monument	153,287	Yes
Museum of Northern Arizona	81,000	No
Lowell Observatory	77,213	No
Homolovi Ruins State Park	18,000	No

Several hotels will be selected from Williams, AZ, and Flagstaff, AZ, for sampling during the main phase of data collection. A variety of factors will influence the decision about which, and how many, hotels should be included as sampling locations in the main phase of data collection. For example, one goal of the pilot phase will be to identify key characteristics that need to be present at a hotel in order for that hotel to be considered a likely sampling location (e.g., presence of an outdoor pool). As in the pilot phase, tourists will also be intercepted at the Tourist Information Center located in Williams, AZ.

Table 5 presents an example of the data collection schedule for intercepting tourists during the main data collection phase. As in the pilot, the GCNP will be sampled every day during the data collection period. However, unlike the pilot, we anticipate intercepting tourists at only two sites within the GCNP (these two sites will be determined based upon the results of the pilot phase).

As in the pilot phase, data collection teams at hotels will be located in the hotel lobby. Data collection teams at the tourist information centers will be located immediately inside or outside of the entrance of the center. With the exception of the GCNP, data collection teams at the national parks/monuments will be located immediately inside or outside the main entrance to the visitor entrance. At the GCNP, the data collection teams will be located in sites identified during the pilot phase.

Table 5. Potential Sample Locations and Schedule for the Main Phase of Data Collection

Location	Interviewer Teams			
	Friday, August 7	**Saturday, August 8**	**Sunday, August 9**	**Monday, August 10**
South Rim, Grand Canyon National Park (two sites)	Team 1 Team 2	Team 1 Team 2	Team 1 Team 2	Team 1 Team 2
Tourist Information Center: Williams	Team 3			Team 3
Hotel A: Williams Hotel B: Williams	Team 4			
Little America Truck Stop: Flagstaff			Team 3	
Hotel B: Flagstaff Hotel C: Flagstaff	Team 5	Team 3		
Hotel D: Flagstaff Hotel E: Flagstaff		Team 4	Team 4	
Sunset Crater/ Wupatki National Monument		Team 5		
Walnut Canyon National Monument			Team 5	
Petrified Forest National Park				Team 4 Team 5

5.2 Intercept Protocol/Sampling Approach

As described in Section 2.0, an intercept approach will be used to identify and collect information from tourists. As illustrated in Figure 1, each data collection team will employ a seven-step process to survey tourists: (1) interception, (2) determining eligibility, (3) recruitment, (4) completion of the main questionnaire, (5) on-site data quality procedures, (6) distribution of incentives, and (7) identification of participants for qualitative interviews and/or focus groups. In the pilot phase participants will be identified only for personal qualitative interviews. During the main phase, participants will be identified for both personal interviews and focus groups (details on the focus groups and personal interviews that will be completed during the main phase of data collection are presented in a separate test plan). The two team members will have separate responsibilities. One team member will serve as a "screening interviewer" and will intercept tourists, determine eligibility, and recruit tourists, while the other team member (the "questionnaire administrator") will oversee the completion of the main questionnaire, perform on-site data quality procedures, distribute the incentives, and identify participants for personal interviews/focus groups. The specific responsibilities of each team member are described in greater detail in the following sections.

5.2.1 Responsibilities of Screening Interviewer

5.2.1.1 Interception and Recruitment of Tourists

The screening interviewer will be responsible for "interception" and the initial recruitment of tourists. That is, the team member will be responsible for approaching and holding the initial contact with potential participants. Initially, interviewers will intercept every 5th person, with the goal of obtaining 10 completed questionnaires per hour. However, this protocol may be revised based upon the actual sampling conditions at each location.

Upon approaching a potential participant, the screening interviewer will introduce themselves and give a brief explanation of the study. Generally, the screening interviewer will be expected to follow a predetermined script for this initial contact. However, they will be allowed to expand upon the information in the script if necessary to promote participation.

5.2.1.2 Determination of Eligibility

Following the initial interception and recruitment of a tourist, the screening interviewer will administer a brief screener questionnaire. The objectives of this questionnaire are to determine eligibility and to collect information that can be used to characterize the tourist population. A copy of the screen questionnaire is contained in Appendix A.

Each question will be read to the participant and the screening interviewer will record the participant's responses on the questionnaire form. In the pilot phase, tourists will be eligible for completion of the main questionnaire if they are tourists and drove into the area. For the main data collection phase, tourists will be eligible for completion of the main questionnaire if they are tourists, drove into the area, and (1) indicate that they are "aware of" components of the ITS deployment or (2) are the first "non-aware" tourist intercepted after an "aware," eligible tourist. In addition to survey responses, language problems or any other difficulties that would prohibit the completion of the main questionnaire will result in ineligibility.

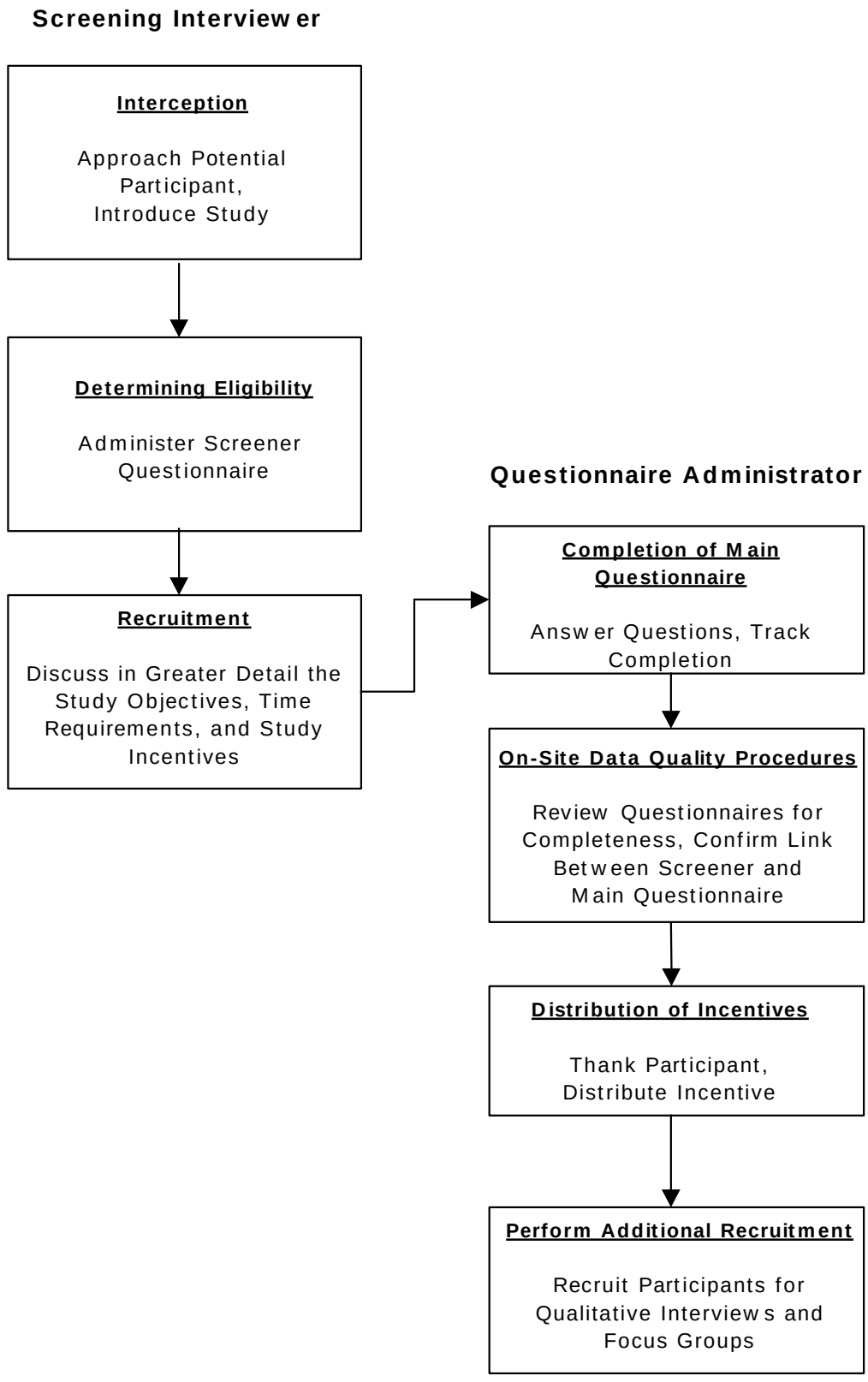

Figure 1. Sampling Approach for Surveying Tourists

Regardless of the eligibility determination, a "disposition" code will be entered onto each form to indicate the results of the screening. Examples of disposition codes are:

01 Ineligible Due to Questionnaire Responses
02 Eligible Due to Questionnaire Responses
03 Eligible Because Followed an "Aware" Participant
04 Refused Screener
05 Eligible Due to Questionnaire Responses but Refused Main Questionnaire
06 Eligible Because Followed an "Aware" Participant but Refused Main Questionnaire
07 Ineligible Due to Language Barrier
08 Ineligible Due to Other (specify other)

A tracking number will be assigned to each tourist intercepted. This number will serve as the unique identifier that links the responses on the screener questionnaire to responses on the main questionnaire.

5.2.1.3 Recruitment

Once the eligibility of the tourist has been determined, the screening interviewer will endeavor to recruit eligible participants to complete the main questionnaire. In general, this will not be a scripted dialog, but the team member will cover key elements. The key elements include: additional details on the study, an estimated time for completion (it is anticipated that the main questionnaire will take less than 10 minutes to complete), and mention of the incentives.

If the screening interviewer is successful in recruiting the tourist, they will direct the tourist to the questionnaire administrator waiting at a nearby table.

5.2.2 Responsibilities of the Questionnaire Administrator

5.2.2.1 Completion of the Main Questionnaire

The questionnaire administrator is responsible for all aspects related to the completion of the main questionnaire. This consists of: (1) receiving the eligible tourists identified by the screening interviewer at a pre-determined location, (2) transferring the unique identifier from the screener form to a main questionnaire form, (3) directing the tourist on how to complete the form and what to do with it once they are finished, and (4) answering questions from participants in the process of completing a questionnaire.

5.2.2.2 On-Site Data Quality Procedures

After completion of the questionnaire, the questionnaire administrator will review all screening and questionnaire forms for completeness and accuracy. This review will be conducted to ensure that the respondent did not inadvertently miss survey questions. If missing questions are identified, the questionnaire administrator will attempt to question the respondent to obtain the response.

5.2.2.3 Distribution of Incentives

Following the successful completion of a main questionnaire and subsequent review, the questionnaire administrator will be responsible for distributing the appropriate incentives.

5.2.2.4 Identification of Participants for Focus Groups/Personal Interviews

After the participant has completed the self-administered questionnaire and while they are receiving the incentive, the questionnaire administrator will identify participants for the personal interviews and focus groups. Personal interviews will be used during the pilot data collection phase as a pre-test for the focus groups which will be conducted during the main phase of data collection. Details on the focus groups are presented in a separate test plan.

The purpose of the personal interviews during the pilot phase is not to achieve a random subsample of the sampled populations, but rather to obtain anecdotal, qualitative information from a group of tourists likely to provide depth to our understanding of how tourists perceive and relate to ITS. Specifically, these personal interviews will be conducted with the objectives of:

- Obtaining information on how well tourists respond to our request to participate in a step after the self-administered survey and to the incentatives offered for their participation.

- Assessing whether there are gaps or revisions that need to be made to the quantitative survey instrument. For example, revisions to the survey instrument would need to be made if many respondents give answers that indicate they have concerns or experiences not addressed in the survey instrument, or if awareness of information systems proves extremely low, or if it proves difficult for respondents to distinguish between the officially deployed systems and other systems (e.g., distinguishing between AAA information and 1-888-411-ROAD information or distinguishing among Web sites).

During the pilot data collection period, an attempt will be made to recruit as many participants as possible to complete the personal interviews (see Appendix A). The data collection supervisor will administer the qualitative interviews. The number of participants who complete a qualitative interview will depend upon three key factors: (1) the willingness of tourists to spend additional time providing information, (2) use of an ITS component by the tourist, and (3) the availability of the data collection supervisor.

At the pilot data collection phase, we anticipate low awareness of ITS deployment since the ITS systems will be very new. Thus, when the data collection supervisor is on site at a sampling location, the supervisor will interview all respondents who have *used* a component of the ITS systems. They will also interview every fifth person who is defined as aware of (but not using) ITS.

During the main data collection phase, the additional recruitment will be focused on identifying and recruiting tourists to participate in both focus groups and personal interviews. Initial identification of tourists will be based upon several questions in the main questionnaire. The questionnaire administrator will be given a quota for each focus group, and recruitment will occur until the quota has been reached. A separate staff member who is not part of the survey data collection team will conduct the focus groups. Further details on the focus groups and personal interviews that will be conducted during the main data collection phase are described in a separate test plan.

6.0 POST-TEST ACTIVITIES

Following each field collection phase, the completed questionnaires will be mailed to a Battelle Survey Operations office, where editors who have been trained specifically for this project will manually edit them for completeness, accuracy, and consistency. This editing will be verified by a 10 percent re-edit of each editor's work. The collected data will then be electronically keyed with double entry and 100 percent verification.

A data preparation manager will be responsible for maintaining documentation on all data preparation activities. The data preparation manager will work together with a programmer to produce file layouts with clear column specifications, data types, missing value codes, and editing specifications (range of value, logic checks, and automatic filling of skip patterns). A codebook will be produced for each data collection instrument. This codebook will describe the computer data file in terms of the instrument used to collect the data and will provide documentation to be used by coders, programmers, and investigators. The codebook also serves as a vehicle to maintain documentation on editing and coding decisions.

After entry, data will be checked by electronic data cleaning using a menu-driven software package called CROSSBOW. The CROSSBOW system can be used to perform numerous operations including:

- Define variables for a raw data set (ASCII file) in terms of type, location within the data file, and field width, and assign labels up to 40 bytes in length to describe each variable.
- Define acceptable values with associated description labels for each variable along with skip patterns within the data file.
- Establish formal documentation in the form of a formatted codebook containing variable locations, variable descriptions and labels.
- Create a cleaning program to check range of acceptable values for fields and to check that skip patterns are generated from the specifications defined for each variable and executed from within the system. Error listings are produced.
- Modification of fields within a data set can be made through transactional updates. Only fields verified by re-keying can be updated. A record of all changes made is produced.
- The specification files for creating SAS data sets, including input/output statements, variable labels, and value formats are automatically generated from the raw data set.
- Automatic audit trails are maintained of all activities performed on the codebook, all programs executed against a data file, and all changes made to a data file.

All errors flagged during the electronic data cleaning effort will be researched and the correct answer entered into the database.

7.0 DATA REQUIREMENTS AND ANALYSIS

7.1 Data Requirements

There are several requirements that need to be met to ensure that the test results in statistically sound estimates. First, as discussed in Section 3.0, there must be a large enough population of aware and non-aware tourists to sample. The sample size requirements for each phase of data collection are presented in the following two sections.

7.1.1 Sample Size Requirements for Pilot Phase of Data Collection

One of the primary objectives of the pilot data collection phase is to obtain preliminary information on the awareness of tourists about certain components of the ITS deployment. This criterion is used to develop the target sample size.

Table 6 provides sample size requirements for the pilot data collection phase under various assumptions. Assuming that 10 tourists are screened each hour (for approximately six hours) and that 25 percent of those screened will meet the eligibility protocol and agree to complete a longer questionnaire, it is anticipated that 600 screener and 150 main questionnaires will be completed. From Table 6, this will allow for the simultaneous estimation of the proportion of tourists at various levels of awareness within ± 5 percent at an overall confidence level of 95 percent (awareness is asked in the screener questionniare). For questions asked in the main questionnaire (e.g., use of a particular ITS component), 150 completed questionnaires will permit the simultaneous estimation of the proportion of tourists at various usage levels within ± 10 percent at an overall confidence level of 95 percent.

Table 6. Sample Size Requirements for Pilot Data Collection Phase

Overall Confidence Level	Sample Size Required for All Estimates Within ±5%	Sample Size Required for All Estimates Within ±7%	Sample Size Required for All Estimates Within ±10%
80%	299	153	75
90%	403	206	101
95%	510	260	128

7.1.2 Sample Size Requirements for Main Phase of Data Collection

The objectives of the main phase of data collection differ somewhat from those of the pilot phase. Like the pilot, one objective of the main phase of data collection is to simultaneously estimate the proportion of tourists that are at various levels of awareness. However, the primary object of the main phase of data collection is to obtain information that can be used to compare the questionnaire responses between tourists who are “aware of and using” components of the deployment to those tourists who are “unaware of or not using” deployed components. Therefore, this second objective will be used to establish the required sample sizes for the main data collection phase.

Table 7 presents sample size requirements for detecting a difference in the proportion of "aware of and using" and "unaware of or not using" tourists responding affirmatively to a particular question (e.g., comparing the proportion of "aware of and using" vs. "unaware of or not using" tourists who indicated that they were highly satisfied with their driving experience). Assuming that 10 tourists are screened each hour (for approximately six hours on four days) and that 25 percent of those screened will meet the eligibility protocol and agree to complete a longer questionnaire, it is anticipated that 1200 screener and 600 main questionnaires (300 from aware tourists and 300 from unaware tourists) will be completed. Thus, using only the information from the main data collection phase, a difference of ±12.5 percent can be detected with 95 percent confidence or a difference of ±10 percent can be detected with 90 percent confidence.

Table 7. Sample Size Requirements for Main Data Collection Phase

	Detectable Difference in Proportions		
Confidence Level	**Sample Size in Each Group Required to Detect Difference of ± 7.5%**	**Sample Size in Each Group Required to Detect Difference of ± 10%**	**Sample Size in Each Group Required to Detect Difference of ± 12.5%**
80%	399	224	143
90%	548	307	196
95%	696	390	249

7.2 Data Analysis

The survey will provide valuable information on advanced traveler information systems (ATIS) awareness, use, and resulting behavior in rural environments. It will also provide information on the tourists' travel experiences, satisfaction with various aspects of the transportation system, travel characteristics, and general demographic information. This information will be used to assess tourist awareness and use of ITS and to test specific hypotheses related to the primary evaluation goals. The hypotheses to be tested and the survey-related measures that will be used to address these hypotheses are presented in Table 8.

The statistical analysis of the information collected from tourists as part of this test will be performed using the SAS and SUDAAN.

The analyses will be performed using data collected during both data collection phases. For each question in the questionnaire, means and standard deviations (for continuous responses) or contingency tables (for categorical responses) will be prepared. In addition, graphical summaries (histograms, mean and confidence interval plots, etc.) will be prepared for select questions. Statistical procedures will be used to create confidence intervals and to compare responses for a particular question.

Table 8. Hypotheses and Evaluation Measures Related to the Tourist Intercept Surveys

Evaluation Area	Hypotheses	Evaluation Measures
ITS Awareness and Use	At least 25% of tourists are aware of at least one ITS component	Percentage of respondents reporting awareness
	At least 10% of tourists use at least one ITS component	Percentage of respondents reporting usage
	Over 80% of tourists using a specific component receive accurate, understandable, and easy to obtain information	Percentage of respondents indicating that the system is accurate, understandable, and easy to use
Mobility	Tourists using ITS components will have a more satisfying travel experience than those who do not	Proportion of respondents indicating satisfaction with travel conditions
	Using ITS components will save time for tourists	Proportion of respondents indicating that the information saved time
	Using ITS components will make travel easier for tourists	Proportion of respondents agreeing that ITS made it easier to travel and avoid congestion Reported number of stops for directions
Access	Tourists will use alternative routes as a result of obtaining information from a deployed ITS component	Percentage of respondents who indicate use of alternative route
	Tourists will visit alternative attractions as a result of obtaining information from a deployed ITS component	Percentage of respondents indicating a change in attractions due to ITS
	Tourists using a deployed component of ITS will be more aware and able to visit more attractions than will non-users	Reported number of attractions visited
Congestion	The ITS components will help tourists avoid congestion	Percentage of respondents indicating that congestion was avoided
	Tourists using ITS will experience fewer and shorter delays	Reported number and length of delays
Economic Development	Tourists using an ITS component are more likely to return than tourists who do not use ITS	Percentage of respondents indicating an intent to return
	Tourists using components of the ITS will stay longer and spend more than will tourists who do not use an ITS component	Reported number of overnight stays and expenditures
	Tourists using ITS components will use them again and would be willing to pay a fee for such information	Percentage of respondents agreeing that they would use the source again and would pay a fee for use
Safety	ITS will improve travelers' perceptions of safety	Percentage of respondents agreeing that the highways are safer

Where appropriate, sampling weights will be used to develop area-wide estimates. In particular, visitation counts to the national parks/monuments during the time of data collection will be used to weight the results of participants sampled at the parks/monuments. These weights will be used to develop area-wide estimates of awareness and usage of ITS.

The analysis will also compare the responses of tourists who are aware of and using components of ITS to those who are unaware of or not using components of the ITS system. For example, it is of interest to determine whether the perception of tourists who are aware of and using ITS on their ease of travel differs from the perception of tourists who are unaware of or not using ITS. Comparisons will be made within each evaluation goal area (mobility, access, congestion, economic impact, and safety).

Several statistical techniques will be used to compare the responses of the two groups of tourists. In particular, t-tests, χ^2 tests, log-linear models, and general linear models will be employed. Table 9 presents an example of the type of information that will be obtained and used to compare the overall satisfaction with driving experiences between the two groups. Using the numbers presented in Table 9 yields an estimated odds ratio of 2.14 (95% confidence interval of 1.55 to 3.45). That is, tourists who are aware of and using ITS components are 2.14 times more likely to be satisfied with their driving experience than are tourists who are unaware of or not using components of ITS. Log-linear models will be used to examine the association between use of ITS and categorical responses with more than two levels. General linear models will be used to compare the responses between the two groups for questions with continuous responses.

Table 9. Example of Perceived Satisfaction With Driving Experience

Use of ITS	Number That Report an Unsatisfactory Driving Experience	Number That Report an Satisfactory Driving Experience	Total
Aware of and Using	75	225	300
Unaware of or Not Using	125	175	300
Total	200	400	600

Similar techniques will be used to compare the results of the main data collection phase to those obtained in the pilot data collection phase. Again, a comparison of the proportions and means of responses to various questions will be performed.

8.0 REPORT FORMAT

The results of this test, along with the corresponding test at the Branson FOT, will be summarized in a technical report. The report will contain the following sections:

1.0 Executive Summary

2.0 Introduction and Background

3.0 Summary of the Approach

4.0 Summary of Results

5.0 Statistical Analysis

6.0 Conclusions

7.0 Recommendations for Future Evaluations

9.0 REQUIRED RESOURCES

Table 10 presents the approximate level of effort needed to conduct this test.

Table 10. Approximate Level of Effort (person-hours)

Project Role	Task				
	Pre-Test Activities	Test Activities	Post-Test Activities	Analysis and Reporting	Total
On-Site Evaluator	90	50	5	50	195
Other Professional Staff	5	10	2	103	120
Data Collection Supervisor	25	95	0	0	120
Data Collection Crew	0	488	232	0	488
Data Processing Staff	0	0	232	0	232

APPENDIX A

QUESTIONNAIRES

(Note: The draft questionnaires originally prepared for this test plan were revised prior to the pilot and main surveys. This appendix contains the final versions of the questionnaires.)

I–40 FULL STUDY SCREENER

Mini label

REC 01

1. Are you a tourist here or do you live and work in the area?
Tourist 1
CVO/Worker ..... (SKIP TO 8) 2
Live in area..... (SKIP TO 8) 3

2. In coming here to this part of Arizona, did you drive, take a tour bus, or how did you get here? INTERVIEWER NOTE: IF RESPONDENTS SAY THEY FLEW, ASK IF THEY THEN RENTED A CAR AND DROVE TO THIS SITE
Drove 1
Other..... (SKIP TO 8) 2

3. How many people are traveling in your party? 1 (SKIP TO 5) 2 3 4 5 6 7 8 9 10 ____

4. In your party, who was the person mostly in charge of figuring out how to get here and how to get around here?
Respondent..... 1
Other.. SPEAK TO THAT PERSON. IF NOT AVAILABLE, CONTINUE WITH R..... 2

5. Are you staying overnight within an hour's drive of this location?
Yes 1
No..... (SKIP TO 6) 2

A. Are you staying in:
A hotel or lodge? 1
An RV? 2
A tent campground? 3
With friends or relatives?..... 4

6. What state or country are you from? _____

7. Either before you left on your trip or while driving here, were you aware of any of the following items, regardless of whether you actually used them?

A. First is a toll–free number, 888–411–ROAD, specifically to get traffic and road conditions for Arizona roadways. This is an automated number. You call on a touch–tone phone, then punch in the route number and it gives you information on that route. Before I just asked, were you aware of that number?
Aware.....1 Not Aware ..(SKIP TO B).... 2

1) Did you actually use that toll–free phone number? **YES, NUMBER** .....1 No .....(SKIP TO B).... 2

2) Did you call before you left on your trip, or since you got to Arizona?
Before .....1 Since AZ .....2 Both 3

B. Before I just asked, were you aware of an Internet or World Wide Web site to browse for information on traffic, routes, and attractions specifically in Arizona in the area around I–40 and I–17?
Aware.....1 Not Aware ..(SKIP TO C).... 2

1) Did you actually visit or use the website? **YES, WEBSITE** .....1 No..... (SKIP TO C).... 2

2) Did you do that before you left on your trip or since you got to Arizona?
Before .....1 Since AZ .....2 Both 3

C. Before this, were you aware of interactive computer screens in kiosks that give traffic and attraction information and that are located in Arizona at rest stops, tourist information facilities, and attractions, like the ones shown in the pictures?
Aware.....1 Not Aware . (SKIP TO D).... 2

1) Did you actually use one of those kiosks? **YES, KIOSK** .....1 No..... 2

D. Did your route here include either I–40 or I–17? Yes .....1 No..... (SKIP TO E) ... 2

1) Did you happen to notice route signs on I–40 or I–17 like the one in the picture that have changing messages and provide information on weather, traffic, or alternate routes?
Aware.....1 Not Aware .. (SKIP TO E) ... 2

2) Did you actually make use of the message on one of those signs? **YES, SIGN**.....1 No..... 2

E. Were you aware of highway advisories on local Northern Arizona radio and television stations giving updates about traffic on I–40 or I–17, not including the Grand Canyon station?
Aware.....1 Not Aware .. (SKIP TO 8) ... 2

1) Did you actually make use of the message on one of those live updates? **YES, RADIO** .....1 No..... 2

8. DISPOSITION:
CONTINUING .....(GO TO SAQ) 1
LANGUAGE PROBLEM 2
BEGAN, THEN REFUSED SCREENER 3
REFUSED SAQ..... 4
COOPERATIVE BUT NOT QUALIFIED AT ITEM (1,2) 5

END 01

MINILABEL

Arizona Travel Survey

1. How strongly do you agree or disagree with the following? *Please circle your responses on the scale from 1–5.*

	TOLL-FREE NUMBER	WEBSITE	KIOSK	HIGHWAY MESSAGE SIGN	RADIO/TV ANNOUNCEMENT
	STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE	STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE	STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE	STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE	STRONGLY DISAGREE 1 2 3 4 5 STRONGLY AGREE
a. The information was accurate	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
b. The information was understandable	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
c. It was easy to obtain the information	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
d. The information saved you time	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
e. The information helped you choose:					
i. A route	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
ii. Attractions to visit	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
iii. A place to stay	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
f. The information let you know what problems to expect while driving here	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
g. The information helped you to avoid traffic congestion	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
h. The information made it easier to get here	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
i. You would use this source of information again	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
j. You would be willing to pay a fee such as $1 to $3 for such information	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	NOT APPLICABLE	NOT APPLICABLE
k. The information **confirmed** you took the right route	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO
l. The information **changed** the routes you took	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO
m. The information **changed** which attractions you decided to visit	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO

2. Did you use any of the following sources of travel and traffic information in addition to the ones we asked about on page one? *Please ✓ all that you used.*

- ❑ Maps
- ❑ Travel organizations like AAA
- ❑ Asked directions at a hotel
- ❑ Stopped while driving and asked directions
- ❑ Other: _____

3. As a result of getting information before or during your trip, which of the following did you do? *Please ✓ all that you did.*

- ❑ Chose a route to get to area sites
- ❑ Chose to go to one or more sites or attractions you had not known about
- ❑ Chose a time to visit a site or attend a show
- ❑ Chose an alternate method of transportation to the site such as taking a shuttle to the site instead of driving

4. During this trip to northern Arizona, about *how many times*, if at all, have you experienced serious traffic congestion such as sitting still in traffic or moving slowly and below normal speed, delaying you for ten minutes or more? *Please circle one number.*

❑ **no delays (SKIP TO 8)**

1 2 3 4 5 6 7 8 9 10 OR MORE

5. While on I–40 or I–17 *coming to* northern Arizona, about how long in total do you think you were delayed by such problems? *Please ✓ one answer.*

❑ 0/Not at all ❑ 5 min. ❑ 10 min. ❑ 20 min. ❑ 30 min. ❑ 40 min. ❑ 50 min. ❑ 60+

6. If you experienced congestion either getting here or once in this general area, did you always stay on the same route and wait out the delay, or get off and use an alternate route?

- ❑ Waited it out **(SKIP TO 8)**
- ❑ At least once, took an alternate route

7. If you took an alternate route one or more times during this trip, which, if any, of the following did you use to find that alternate route? *Please ✓ all that you used.*

- ❑ Saw a sign advising an alternate route
- ❑ Called the 1-888-411-ROAD traffic number
- ❑ Used a computer screen at an information kiosk
- ❑ Used a map
- ❑ Stopped to ask directions
- ❑ Knew alternate route from past experience
- ❑ Just followed your sense of direction

8. Please circle a number to show how strongly you agree or disagree with each statement.

		STRONGLY DISAGREE									STRONGLY AGREE
a.	It was easy to find your way to the attractions you are visiting today	1	2	3	4	5	6	7	8	9	10
b.	It was easy to find your way to a parking lot today	1	2	3	4	5	6	7	8	9	10
c.	It was easy to avoid traffic congestion today	1	2	3	4	5	6	7	8	9	10
d.	The highways you used to get here to northern Arizona were safe	1	2	3	4	5	6	7	8	9	10
e.	Overall, you are pleased with travel conditions on this trip (such as traffic, safe conditions, clear routes and so forth)	1	2	3	4	5	6	7	8	9	10
f.	Overall, you were pleased with travel conditions on a *previous* trip to this area	❑ **no previous trip** 1	2	3	4	5	6	7	8	9	10

9. How many separate attractions do you plan to see during this visit to northern Arizona? (For example, Grand Canyon National Park would be one attraction, the I-Max theater a second attraction, Petrified Forest a third, etc.) ***Please circle one number.***

1 2 3 4 5 6 7 8+

10. In getting around the parks, hotels, and attractions you are visiting here, how many times, if at all, have you been unable to find your way and had to stop and use a map or ask directions? ***Please circle one number.***

0 1 2 3 4 5+

11. How likely are you to return to this area of northern Arizona in the next two or three years? Will you: ***Please ✓ one answer.***

- ❑ Definitely return (**SKIP TO 12**)
- ❑ Probably return (**SKIP TO 12**)
- ❑ Probably not return
- ❑ Definitely not return

A. If you are not returning, how important are the following as reasons not to return?

	NOT IMPORTANT									VERY IMPORTANT
1. Traffic	1	2	3	4	5	6	7	8	9	10
2. Parking	1	2	3	4	5	6	7	8	9	10
3. Other road conditions	1	2	3	4	5	6	7	8	9	10
4. Other reasons	1	2	3	4	5	6	7	8	9	10

12. How many overnights are you staying here in this area or within a one-hour drive? ***Please circle one number.***

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14+

13. Today is which day of your total visit? ***Please circle one answer.***

1st 2nd 3rd 4th 5th 6th 7th More

14. Do you regularly access the world-wide-web/Internet once a week or more often either at home or at work?

- ❑ Yes
- ❑ No

15. Not including hotel or rental car costs, but including restaurants, purchases such as film, souvenirs, tickets, admissions, tours, rentals and other expenses, how much do you estimate you and your immediate travelling party will spend during your visit here and places within one hour from here? ***Please ✓ one box.***

- ❑ Less than $25
- ❑ $26-$50
- ❑ $51-$75
- ❑ $76-$100
- ❑ $101-$200
- ❑ $201-$300
- ❑ $301-$500
- ❑ More than $500 $ _____

16. Prior to making this trip, how familiar would you say you were with each of the following electronic highway traffic management technologies?

	VERY FAMILIAR	SOMEWHAT FAMILIAR	NOT FAMILIAR
a. Live video of freeway conditions on local TV news	❑	❑	❑
b. Electronic message signs with changing messages on freeways and other major highways	❑	❑	❑
c. Highway on-ramps that use red/green traffic signals to control traffic flow onto freeways	❑	❑	❑
d. Computerized navigation systems inside vehicles	❑	❑	❑
e. Highway information on the Internet	❑	❑	❑

17. In what year were you born? 19 ☐☐

18. What is the highest level of education you have completed?

- ❑ Elementary
- ❑ High School
- ❑ 1-3 years of college (incl. 2-year degree)
- ❑ 4-year college degree
- ❑ Graduate degree

19. What is your home zip code in the U.S.? _____ ❑ Not in USA

20. Are you: ❑ Female ❑ Male

21. Is there other information you did not get that would have been helpful in avoiding traffic problems or finding your way?

_____